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IS 6106 (1971): Tables, Operation, Hydraulic, Minor [MHD
12: Hospital Equipment]



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Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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Indian Standard

SPECIFICATION FOR
TABLES, OPERATION, HYDRAULIC, MINOR

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INDIAN STANDARDS INSTITUTION
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Indian Standard

SPECIFICATION FOR TABLES, OPERATION, HYDRAULIC, MINOR

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(Continued on page 2)

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Indian Standard

SPECIFICATION FOR TABLES, OPERATION, HYDRAULIC, MINOR

0. FOREWORD

0.1 This Indian Standard was adopted by the Indian Standards Institution on 15 April 1971, after the draft finalized by the Hospital Equipment Sectional Committee had been approved by the Consumer Products Division Council.

0.2 This is one of the series of Indian Standards on hospital equipment formulated at the instance of the Advisory Committee for the Development of Surgical Instruments, Equipment and Appliances, Government of India.

0.3 For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test, shall be rounded off in accordance with IS:2-1960*. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

1. SCOPE

1.1 This standard lays down constructional and performance requirements of manually controlled, hydraulic, minor operation tables.

2. TERMINOLOGY

2.1 For the purpose of this standard the following definition shall apply.

2.1.1 *Minor Operation Table* — A surgical operation table fitted with a hydraulic pump to raise and lower the table top, and having a side end control for positioning of the table top during surgical operations.

3. MATERIALS

3.1 The materials used in the manufacture of operation tables shall be either corrosion resistant or shall have a protective finish.

3.2 The raising column and the gearing system shall be made from materials which resist wear during normal manipulation.

*Rules for rounding off numerical values (*revised*).

3.3 The handles provided shall be made from well-seasoned wood free from defects, ebonite or phenol formaldehyde moulding powder of Grade 1 or Grade 2 (*see* IS : 1300-1966*).

3.4 If stainless steel is used, it shall be according to Designation 04Cr19Ni9 or 07Cr19Ni9 of schedule V of IS : 1570-1961†.

3.5 Antistatic rubber tread castors according to IS : 4034-1968‡ shall be used.

NOTE — When antistatic rubber tread is not available, the construction of the table shall otherwise ensure transmission of static charge to the earth.

4. DIMENSIONS

4.1 Table Top — The overall length of table top shall be 180 cm, *Min*, with the head section drawn in and 195 cm, *Min*, with the head section drawn out. The overall width of the table top shall be 50 to 55 cm.

4.2 Height — In the lowest position (without mattress), the table top shall have a height between 80 ± 5 cm and at the extreme lifted position (without mattress) between 95 ± 5 cm, subject to limitations given in 5.3.

5. CONSTRUCTION

5.0 A typical design of minor operation table is shown in Fig. 1.

5.1 Base — The base shall be solid and mounted on castors so situated as to give stability to the operation table (*see also* 6.2). The base shall have non-skid compensating floor-locks actuated by a pedal. The base may also have foot-rails for providing comfortable foot-rest for the surgical team.

5.2 Table Top — The table top shall have a minimum of three sections, namely, head, trunk and leg sections. The head section shall be detachable. As for leg section, it is left to the manufacturer to make it detachable also if so required by the consumer. The entire table top shall have a jerk-free vertical movement, where 'jerk' is defined as the sudden change in speed. In case of multiple cylinder hydraulic systems, the sudden change in speed (jerk) as a result of cylinder diameter differences shall not be in excess of ' $n - 1$ ', where ' n ' is the number of cylinders. Further:

- a) the entire table top shall be capable of being tilted to $30 \pm 1^\circ$ trendelenburg and reverse trendelenburg positions;

*Specification for phenolic moulding materials (*second revision*).

†Schedules for wrought steels for general engineering purposes.

‡Specification for castors for hospital equipment.

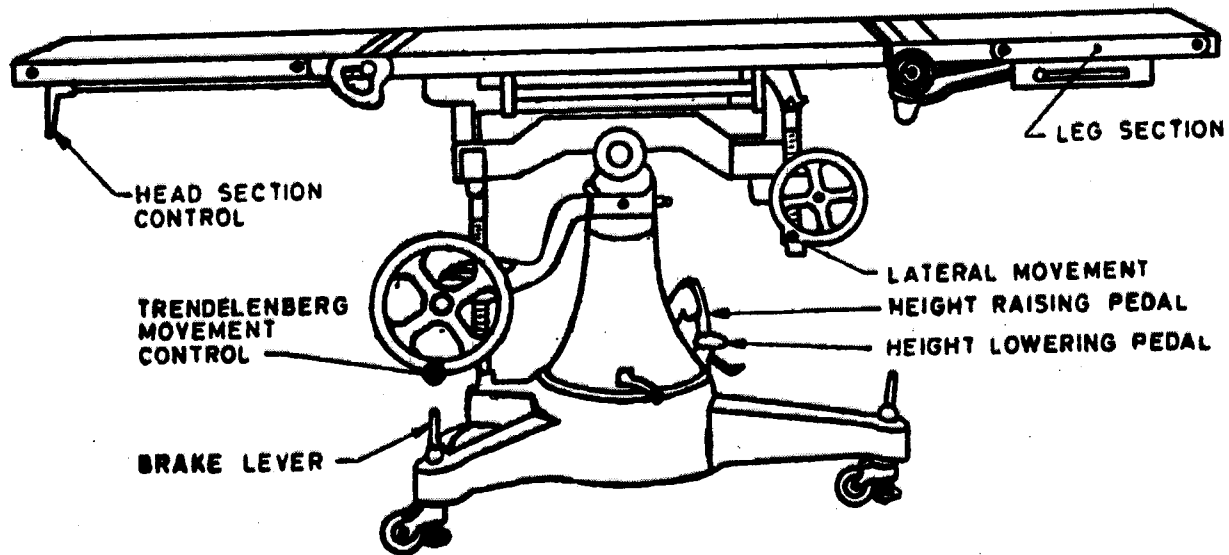


FIG. 1 TABLE, OPERATION, HYDRAULIC, MINOR

- b) it shall have arrangements for a lateral tilt of $20 \pm 2^\circ$ in either direction;
- c) the wheels used for making trendelenburg, reverse trendelenburg and lateral positions shall have scales for measuring angular sweep; and
- d) the table top may be provided with a perineal cut out for drainage tray.

5.2.1 Head and Leg Sections — The head section shall be capable of being raised to 40° to 45° and in its reverse position to 90° from the trunk portion. The leg section shall be capable of being lowered to at least 90° from the trunk so as to enable the table to be used as a chair and also for obtaining other positions. The head section and the table top shall have controls capable of positioning during operation and the controls shall be situated so as not to interfere with the surgical team. The various controls may be independent, and on sides of the table with removable type or folding type handles.

5.3 Hydraulic Lift — The table shall have a hydraulic pump encased in the base for controlling the lift of the table. It shall operate by a pedal. The table lift shall be between 15 to 25 cm. All controls shall have easy access and various component parts of the controls and the table shall be easy to clean and maintain. All parts intended to be removed by the user shall be easy to replace with parts of the same make and difficult to assemble incorrectly.

6. PERFORMANCE REQUIREMENTS

6.1 Hydraulic Lift — The hydraulic lift shall give a vertical jerk-free and smooth movement to the system. When the hydraulic pressure is released, the table top shall take not less than 10 seconds and not more than 30 seconds to travel from the maximum height to the bottom most position. The downward movement shall be smooth and subject to limitations in 5.2. When the table top is held in any position by hydraulic action alone, and loaded with 150 kg in the trunk portion, it shall not sink by more than 3 mm in a period of four hours.

6.2 Base — The base shall be stable on the castors and on the non-skid floor-locks. On castors, the table shall be capable of moving on a smooth cemented floor, when a pull of maximum 120 N (12 kgf) is applied in its static position and capable of propulsion with pull of 70 N (7 kgf) Max, after it is set in motion. The floor-locks shall give rigidity to the table and the table shall not move in any direction when a force of 500 N (50 kgf) is applied to the base in any direction.

6.3 Table Top— It shall satisfy the requirements given below in any position obtainable by the hydraulic lift:

- a) When a force of 500 N (50 kgf) is applied vertically on the extreme edge of the head section drawn in completely, the leg section shall not lift by more than 15 mm. When a load of 5 kgf is dropped from a height of 150 mm on to the extreme end of the head section (with the head section drawn in) the head section shall not get detached.
- b) When the head section is pulled out with a 250 N (25 kgf) pull along its plane, the head section shall not come off, when locked.
- c) Once the accessories are clamped, there shall be no wobble under normal conditions.

7. WORKMANSHIP AND FINISH

7.1 The various components shall be made accurately to give smooth operation and other performance requirements laid down in 6. All surfaces shall be well finished and shall not have surface defects, such as pin holes, blisters, and blow holes. All edges shall be rounded off. All the three sections comprising the table top, in their normal positions, shall be in one plane approximately when tested with a spirit level. The sweeps of the head and leg sections shall be true. All welded joints shall have welds fully penetrating and shall be well finished. All non-corrosive metal surfaces (aluminium and stainless steel) shall be matt finished. Corrosive surfaces like steel castings for base cylinder, and pedal shall be painted to the shade which reflects the least, say sea green, or as agreed to between the manufacturer and the purchaser. Prior to painting, the surface shall be degreased, rust-proofed by phosphating and then suitably protected by an anticorrosive primer, either by brushing or spraying and then finished by spraying in stove enamel or air-drying enamel of the specified shade. In every instance, each coat shall be separately stoved or air-dried, as the case may be. The resulting finish shall be hard and shall not readily chip or flake. Brass parts and mild steel parts (which are plated chromium over nickel); shall conform to Service Grade 2 of IS:4827-1968* and IS:1068-1968† respectively. The handles shall have an easy grip and shall not impart colour or stain to the hand. Wooden handles, if provided, shall be lined oil coated or varnished.

*Specification for electroplated coatings of nickel and chromium on copper and copper alloys.

†Specification for electroplated coatings of nickel and chromium on iron and steel (first revision).

8. ACCESSORIES

8.1 The table shall be provided with the following accessories:

- a) Foot-extension;
- b) Shoulder supports, side supports with antistatic rubber pads;
- c) Anaesthetic screen;
- d) Leather wristlets;
- e) Pair of knee crutches or lithotomy leg holders; and
- f) 25 to 50 mm sponge antistatic rubber mattress.

NOTE — When antistatic rubber is not used, the construction of the table shall, otherwise, ensure transmission of static charge to the earth.

8.2 The following shall be optional:

- a) Neck elevator or shoulder bridge,
- b) Permeable table top for radiography with cassette tray and necessary guide,
- c) Stainless steel transurethral tray with wire-mesh screen,
- d) Instrument tray,
- e) Neurosurgical attachment,
- f) Intravenous arm board with mattress,
- g) Active kidney bridge, and
- h) Lateral cassette holder.

9. INSTRUCTIONS FOR USE AND MAINTENANCE

9.1 The table shall be accompanied by instructions manual giving the following information:

- a) Brief instructions for installation and maintenance,
- b) Range of hydraulic lift, and
- c) Instructions for correct operation of the table.

10. MARKING

10.1 Each table shall have a name plate fixed to it showing the following:

- a) Manufacturer's name, initials or registered trade-mark;
- b) Any special instructions for safe handling of the table; and
- c) Words ' Made in India '.

10.1.1 Each table may also be marked with the ISI Certification Mark.

NOTE — The use of the ISI Certification Mark is governed by the provisions of the Indian Standards Institution (Certification Marks) Act, and the Rules and Regulations made thereunder. Presence of this mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard, under a well-defined system of inspection, testing and quality control during production. This system, which is devised and supervised by ISI and operated by the producer has the further safeguard that the products as actually marketed are continuously checked by ISI for conformity to the standard. Details of conditions, under which a licence for the use of the ISI Certification Mark may be granted to manufacturers or processors, may be obtained from the Indian Standards Institution.

10.2 Each table shall have a transfix label fixed to it listing areas of caution, wherever possible.

11. PACKING

11.1 Each operation table shall be packed in a well cushioned sturdy case to stand rough handling during transit. The case shall be waterproof inside. The hydraulic oil shall be supplied in sealed tins and hydraulic system and gear system encased in suitable dustproof material.

INTERNATIONAL SYSTEM OF UNITS (SI UNITS)

Base Units

QUANTITY	UNIT	SYMBOL
Length	metre	m
Mass	kilogram	kg
Time	second	s
Electric current	ampere	A
Thermodynamic temperature	kelvin	K
Luminous intensity	candela	cd
Amount of substance	mole	mol

Supplementary Units

QUANTITY	UNIT	SYMBOL
Plane angle	radian	rad
Solid angle	steradian	sr

Derived Units

QUANTITY	UNIT	SYMBOL	DEFINITION
Force	newton	N	1 N = 1 kg.m/s ²
Energy	joule	J	1 J = 1 N.m
Power	watt	W	1 W = 1 J/s
Flux	weber	Wb	1 Wb = 1 V.s
Flux density	tesla	T	1 T = 1 Wb/m ²
Frequency	hertz	Hz	1 Hz = 1 c/s (s ⁻¹)
Electric conductance	siemens	S	1 S = 1 A/V
Electromotive force	volt	V	1 V = 1 W/A
Pressure, stress	pascal	Pa	1 Pa = 1 N/m ²

INDIAN STANDARDS INSTITUTION

Manak Bhavan, 9 Bahadur Shah Zafar Marg, NEW DELHI 110002

Telephones : 26 60 21, 27 01 31

Telegrams : Manaksanstha

Regional Offices:

		Telephone
Western : Novelty Chambers, Grant Road	BOMBAY 400007	37 97 29
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AMENDMENT NO. 1 SEPTEMBER 1984

TO

IS:6106-1971 SPECIFICATION FOR TABLES, OPERATION,
HYDRAULIC, MINOR

Alterations

(Page 4, clause 3.5) - Substitute the following
for the existing clause:

'3.5 Castor wheels shall be made from anti-static
nylon, anti-static rubber or steel. Castors shall
satisfy the requirements of IS:4034-1979†.

Note - When antistatic rubber or nylon wheels
are not available, the construction of the table
shall otherwise ensure transmission of static
charge to the earth.'

Addenda

(Page 4, clause 4.2, line 3) - Add the word
'preferably' between the words '(without mattress)'
and 'between 95 ± 5 cm'.

(Page 4, foot-note with '†' mark) - Add the
words '(first revision)' after the words 'hospital
equipment'.

(CPDC 14)

AMENDMENT NO. 2 JANUARY 1996
TO
IS 6106 : 1971 SPECIFICATION FOR TABLES,
OPERATION, HYDRAULIC, MINOR

(*Page 3, clause 1.1*) — Substitute the following for the existing clause:

'1.1 This standard lays down constructional and performance requirements of manually controlled height adjustment, minor operation tables.'

(*Page 3, clause 2.1.1*) — Substitute the following for the existing clause:

'2.1.1 *Minor Operating Table* — A surgical operation table fitted with hydraulic pump or mechanical device (or electro-mechanical device) to raise and lower.'

(*Page 4, clause 3.3*) — Substitute the following for the existing clause:

'3.3 The handles provided shall be made from ebonite or phenol formaldehyde.'

[*Page 6, clause 5.2(c)*] — Delete.

(*Page 6, clause 5.3*) — Substitute the first and second sentences with the following:

'The table shall have a hydraulic pump or mechanical device (or electro-mechanical device) lifting/lowering device fitted with the base of the table. It shall operate by a pedal or a handle.'

**AMENDMENT NO. 3 AUGUST 1998
TO
IS 6106:1971 SPECIFICATION FOR TABLES,
OPERATION, HYDRAULIC MINOR**

(Page 7, clause 7.1, last sentence) — Delete.

(MHD 14)

Reprography Unit, BIS, New Delhi, India